Appendix E

GOODS MOVEMENT

May, 2001

2001 RTP Technical Appendix

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Goods Movement

INTRODUCTION

An important goal of the 2001 RTP Update is to ensure smooth connections between the regional community, the rest of the nation and the globe. The purpose of the regional goods movement program is to improve the efficiency of all modes—truck, rail freight, marine shipping, and air cargo; and for all kinds of freight—domestic import/export, containerized, break-bulk, and bulk cargo. In addition, the region recognizes the importance of ancillary facilities such as seaports, airports, and intermodal terminals and supporting functions including freight forwarding, parcel consolidation, and warehousing. The intent is to ensure a more efficient system, with greater throughput, elimination of bottlenecks, reduced congestion, lower environmental impacts, and corresponding economic benefits for the Region and its subregions.

Improvements to the regional goods movement transportation, terminal, and intermodal transfer facilities will require a combination of traditional public sector, quasi-public sector (e.g. port), and private sector funding. For instance, introduction of new and more powerful but lower-polluting railroad locomotives, main line track capacity, and rail yard operational improvements are the responsibility of the private freight railroads. Most roadway and traffic signaling improvements used by trucks are provided by the public sector and these are largely financed by fuel taxes and other user fees. Still other improvements to transportation infrastructure serving seaports and airports may be funded using a mix of port or airport authority revenues, other public funds, and privately generated capital.

Development of a modern, efficient goods movement system for the region is a cooperative venture, including all of the freight modal providers, port and airport authorities, the Federal, State, and local governments, the subregions, and many other parties. The Plan describes improvements in the areas of truck lanes, rail-highway grade crossings, the seaports, and air cargo; and lists major proposed programs and projects in each area. The Goods Movement Appendix, to follow, discusses the SCAG Committee and Task Force process relevant to goods movement, and includes additional information on goods movement issues, problems, and their potential solutions; includes a discussion of potential freight factors for goods movement funding and project selection for the RTP; and has a summary of the recently-completed SR-60 Truck Lane Feasibility Study.

GOODS MOVEMENT ADVISORY COMMITTEE AND TRUCK LANE TASK FORCE

Goods Movement Planning at SCAG falls within the purview of the standing Goods Movement Advisory Committee and the Truck Lane Task Force.

The Goods Movement Advisory Committee (GMAC) was formed in 1995 to address freight issues and freight projects, which often receive little attention in passenger transport-oriented transportation planning efforts. The Mission Statement for the Committee is as follows:

"The Goods Movement Advisory Committee will advise the Regional Council on the conditions prevailing in moving goods in Southern California; on establishing appropriate transportation, infrastructure, air quality and environmentally sound land use policies; and propose programs and priorities to ensure the safe, efficient and economical movement of goods within the region and its competitive advantage in international trade.

The Committee will be responsible for guiding SCAG in the development of an understanding of the freight transportation issues and needs of the region, and will work interactively with SCAG staff to fulfill its charge. The Committee will meet periodically to review the progress of SCAG work, and may establish sub-committees at its discretion to focus on particular concerns. It will seek to reflect the diverse interests of the region, the public and private needs, and the goals of the Regional Comprehensive Plan and Guide."

Since its inception, the GMAC has included elected and appointed officials and staff of cities, counties, subregions, Caltrans, and the Federal Government, as well as private companies and trade associations engaged in the movement and handling of freight – the railroads, truckers, steamship lines, air cargo operations, package express companies, and many others. It also includes representatives of the seaports and airports, environmental groups, law enforcement agencies, local neighborhood groups, goods movement consultants, and many other interested parties.

The intent is that all of these people, of diverse backgrounds, will have a forum for discussion of issues and sharing of information about freight movement, and an opportunity to collectively propose new projects, studies, programs, policies, and initiatives, including providing public information and input into the Regional Transportation Plan. A major part of the GMAC's role in planning is to promote the development of a more efficient goods movement system--with higher throughput, elimination of bottlenecks, greater reliability, reduced congestion and environmental impacts, and corresponding economic benefits primarily for the region and its cities, counties, and subregions, but also for California and the nation as a whole.

The Truck Lane Task Force has the charge of evaluating the potential for developing dedicated truck lanes, generally on freeways, but not limited to the freeway system, and including toll lanes and truck climbing lanes; to bring about separation between trucks and other traffic, and provide for truck priority over other vehicles under congested highway conditions—allowing major potential efficiency and safety gains. The Truck Lane Task Force develops feasibility studies for

the routing, construction, operations, funding and financing, and environmental impacts relating dedicated truck lanes.

The initial role of the Truck Lane Task Force has been to evaluate the feasibility of developing truck lanes on the SR-60 Pomona Freeway, including preliminary engineering and environmental evaluations, and determining the percent of project costs that could be generated through tolls and other special user charges on these lanes. However, the broader truck lane concept is to expand the truck lanes to provide a complete system from the Ports of Los Angeles and Long Beach, via I-710, to connect with SR-60 near downtown LA, and to provide a further connection near Ontario with truck lanes on I-15 which would continue north to the Cajon Pass and with linkage to I-40 near Barstow.

Further, in the longer term, truck lanes on I-5 would be connected to the system, providing links from northern California to Orange County, to the Inland Empire via SR-60, and to the San Pedro Bay ports via I-710. Additionally, truck climbing lanes on I-5 in the Santa Clarita area and on I-15 through the Cajon Pass would be contiguous with the dedicated truck lane system just described, while additional truck climbing lanes (e.g. on I-10, I-215, and SR-57) would be added in other locations to the general freeway system where required by steep gradients.

GMAC PRIORITIES

In December, 1998, the Goods Movement Advisory Committee generated a list of 15 unranked priorities, not in any specific numerical order. These were as follows:

- *Truck Lanes*
- *Regional Railroad Grade Crossing Improvements*
- *Alameda Corridor*
- *Alameda Corridor East*
- *Aviation: Air Cargo and Ground Access Issues*
- *NAFTA*
- *Southwest Passage*
- *The I-710 Gap Closure*
- *Improvements in Freight Movement Productivity (Extended Hours of Delivery)*
- *Transportation Funding for Freight Movement*
- *Subregional Freight Studies*
- *Regional/Subregional Equity in Funding/Project Development*
- *2000 Air Quality Management Plan/Heavy Duty Diesel Emissions and Mitigation*
- *Clean Fuel Technologies for Goods Movement*
- *Longer Combination Vehicles – size and weight, relative to cost allocation*

On February 24, 2000 during a joint meeting of the Goods Movement Advisory Committee and the Truck Lane Task Force, this list was amended by the deletion of the last-mentioned bullet item (longer combination vehicles) as it was felt that that was already being addressed in a national study and it would be redundant for the GMAC to focus on this issue. During the same

meeting, and at the Transportation and Communications Committee (TCC), the bullet relating to the Alameda Corridor East was amended to include Orangethorpe Corridor, which as part of the LA-Orange County-Riverside main line rail corridor parallels the Alameda Corridor East, similarly carries major flows of transcontinental rail freight, and is faced with many of the same kinds of railroad grade crossing issues and improvement needs.

The amended list of what were now considered to be projects, focus areas, and needed studies, as approved by the Transportation and Communications Committee on March 2, 2000, includes 14 bullet items as follows:

- Truck Lanes
- Regional Railroad Grade Crossing Improvements
- Alameda Corridor
- Alameda Corridor East and Orangethorpe Corridor
- Aviation: Air Cargo and Ground Access Issues
- NAFTA
- Southwest Passage*
- The I-710 Gap Closure
- Improvements in Freight Movement Productivity (Extended Hours of Delivery)
- Transportation Funding for Freight Movement
- Subregional Freight Studies
- Regional/Subregional Equity in Funding/Project Development
- 2000 Air Quality Management Plan/Heavy Duty Diesel Emissions and Mitigation
- Clean Fuel Technologies for Goods Movement

* Per the November 15, 2000 GMAC meeting this was changed to “Southwest Passage and other national corridors.

DEVELOPMENT OF A GOODS MOVEMENT MATRIX OF ISSUES, PROBLEMS, AND POTENTIAL SOLUTIONS, AND FUTURE STEPS

In the Spring of 1999, the Goods Movement Advisory Committee undertook to develop a comprehensive matrix of goods movement issues, problems, and potential solutions, which would provide a framework for taking future steps in each of the various areas of goods movement. In its original form, the matrix included actors and previous or on-going studies in each area. It was decided, however, that first the overall framework of issues, problems, and their potential solutions should be developed, before a cataloguing of earlier or current studies would be possible. The intent was that when the matrix was completed, it would provide a guide for creation of new studies, policies, possible rules or legislation, or other actions to promote an effective goods movement system.

The matrix, which was completed over about a year of workshops during GMAC meetings and effectively finalized during the May 17, 2000 meeting was also condensed into a series of guiding principles, which are presented here before displaying the matrix itself:

Guiding Principles for Goods Movement System Improvement

Guiding principles for enhancing the regional goods movement system are given below, by mode and function, including sections on trucking, rail freight, intermodal facilities, marine ports, and airports. These guiding principles include the following:

Trucks

- Continue research on clean fuels such as compressed natural gas (CNG) and liquefied natural gas (LNG) for trucks and promote installation of adequate fueling stations and repair facilities.
- Reduce congestion impacting trucks by providing adequate roadways for trucks such as dedicated freeway truck lanes and truck climbing lanes.
- Promote truck driver and vehicle safety regulations, improved truck technology relating to brakes/anti-jackknifing devices, and radar and video devices to warn drivers of encroaching passenger vehicles.
- Support improved trucking operational efficiencies through introduction of ITS technologies.
- Support effective demand management strategies such as information systems to help manage truck congestion.
- Provide adequate freeway, arterial, interchange, local street, and driveway access for trucks in commercial, industrial, inland port, seaport, and intermodal yard areas.
- Investigate the feasibility of automated truck facilities in long-range planning.
- Support funding for new truck lanes where warranted, for interchanges, parking/ rest/staging areas, and other facilities needed by truckers, and for improvement of arterial highways, local streets, and additional mixed flow lanes in areas where trucks have to operate.

- Develop equitable freight factors for funding high-volume roads and highways in areas heavily used by trucks and develop national goods movement corridors.

Railroads

- Support completion of the Alameda Corridor freight movement project; and support the implementation of major grade crossing improvement programs including the Alameda Corridor East and Orangethorpe Corridor.
- Support increased funding for grade separations and grade crossing improvements, enforcement of crossing safety, and demonstration projects on new grade crossing warning devices to enhance safety.
- Support purchase of cleaner diesel locomotives per the fleet average agreement between the railroad industry and the EPA (1).
- Encourage provision of adequate track capacity to enhance national competitiveness in rail freight movement (1).
- Support programs to fund intermodal yard access and facilitate rail access to inland ports, seaports and industrial areas.
- Support the provision of adequate transfer and storage capacity in rail yards to facilitate separation of mixed freight and intermodal loading operation, development of more efficient intermodal yard designs and operations, and provision of strategically located intermodal facilities--including terminals in Inland Empire locations (1).

Intermodal Facilities

- Support the provision of adequate roadways, signalization, and room for truck queuing and parking.
- Seek funding for research, demonstration projects, and implementation of intelligent transportation system (ITS) improvements to facilitate inland port, seaport, and intermodal terminal access and operations.
- Support better infrastructure for trucks to access intermodal terminals, and provide better connections between shippers, truckers, ports, and intermodal terminal operators.
- Support provision of entry and exit gates of adequate capacity with plans and procedures to improve traffic circulation in the vicinity of these intermodal yards.
- Determine the need for inland container transfer and storage facilities in synergy with industrial development, warehousing, and logistics of rail-truck operations.

Marine Ports

- Encourage improvements in capacity at the ports and implement terminal expansion as part of the ports' master plan.
- Enhance port area mobility and improve land-side access to marine port terminals
- Seek new funding opportunities for additional port, highway, rail, and intermodal infrastructure for SCAG's regional seaports which would help maintain long-term competitiveness with other world ports.

- Support funding improvements in the capacity and design of local arterials in port areas, such as intersection design, signaling, and synchronization of traffic lights.
- Encourage use of lower emission vehicles in port terminals and support operational plans which will reduce running and idling emissions within port grounds.
- Support channel dredging projects to accommodate deeper draft vessels.

Airports

- Evaluate air freight capacity, including runways, terminals, and ground access.
- Consider the re-use of closed military bases and joint civilian/military use of other bases for air cargo expansion purposes.
- Determine which locations will be optimal for cargo airport development.
- Support provision of roadway systems in and around airports which would allow room for trucks to gain easy access to air cargo terminals.
- Support improvement of ground access for vehicles at airports to enhance running speeds and to reduce idling emissions.
- Support studies on the productivity advantages of new automated method of cargo handling and sorting.

(1) Note with regard to railroad line capacity, signaling systems, improvements to rail yards, intermodal terminals and rolling stock such as locomotives and cars: unlike airports, highways, and ports which are publicly owned and funded, the railroads furnish their own equipment and facilities through private sector funding and finance, and are responsible for planning and implementing such improvements. This problem and its potential solution are included for the sake of completeness.

MATRIX OF GOODS MOVEMENT ISSUES, PROBLEMS, AND POTENTIAL SOLUTIONS

The following pages display the full matrix of goods movement issues, problems, and potential solutions as developed by the Goods Movement Advisory Committee. The issues vary depending upon which mode or function is considered (railroads, intermodal facilities, trucking, airports, and marine ports), but common themes are:

- traffic growth
- national competitiveness/national interest
- terminal and highway/ground/landside access
- intermodal transfer
- air quality
- safety
- legislative needs
- regional system development/other regional issues

Under each issue will be listed a number of problems cited by the committee. For every problem, a potential solution will be identified (sometimes the same solution will be cited for several identified problems).

In the future, the intent is to expand the matrix by adding more columns which will display previous, on-going, or programmed studies addressing a given problem and relevant to a particular solution; the actors or interested parties; and recommended further actions, which might include future studies; construction or operational projects; new legislation, rules, or regulations; new funding initiatives; public information; and so on.

GOODS MOVEMENT ADVISORY COMMITTEE

Matrix of issues, problems, and potential solutions

RAILROADS

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
Growth of Rail Traffic	• Highway traffic/railroad interface at rail-highway crossings: rail/road traffic conflicts including delay, capacity, and safety impacts	• Support expanded funding of highway-railroad grade separation and grade crossing improvement programs including, improvements to the Alameda Corridor East and the Orangethorpe Corridor; projects outlined in the Inland Goods Movement Corridor Study (San Bernardino County), the Comprehensive Transportation Plan (Riverside County), and by the Gateway Cities; and additional projects in Ventura County, North LA County, and Imperial County
	• Colton Crossing	• Support implementation of the Colton Crossing railroad-railroad grade separation
	• Non-intermodal traffic generation	• Provide adequate functional storage/working capacity in rail yards to provide separation of bulk, carload, and intermodal loading operations, and adequate main line capacity allowing faster classes of traffic to bypass slower trains (1)
National Competitiveness	• Rail access to the San Pedro Bay Ports	• Support completion of the Alameda Corridor freight movement project
	• Accident potential at highway-railroad grade crossings	• Same action as above, under Growth of Rail Traffic: Highway traffic interface at rail-highway crossings
	• Mainline capacity problems	• Provide double and triple track CTC, adequate sidings, railroad-railroad grade separations in key localities; improve through/run-around tracks in yards and interlocking improvements (1)
	• Availability of rail cars and equipment	• Order larger and more powerful locomotives and adequate numbers of stack and spinal intermodal railcars (1)
	• Abandonment of track	• Evaluate preservation of rail R/W for possible future rail freight uses (1)
Terminal and Highway Access	• Interchanges, arterials and location of gates	• Provide adequate arterial/interchange capacity, additional/better located and wider entry/exit gates, signalize nearby intersections, and improve signal timing and progression
Inter-Modal Transfer	• Intermodal yard capacity	• Provide adequate intermodal facilities, including Inland Empire locations (1)
	• On-dock/near-dock capacity	• Expand both on-dock and near-dock loading facilities and off-dock storage of empty containers (1)
	• Truck-to-rail turnaround time	• Develop more efficient intermodal yard layouts and operations, and provide adequate trailer and container storage on site (1)
	• Operational difficulties	• Research and demonstrate new types of rail intermodal equipment, yard operations, and concepts (1)

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
Air Quality Issues	• Vehicle emissions caused by delay at highway-railroad grade crossings	• Same action as above, under Growth of Rail Traffic: Highway traffic interface at rail-highway crossings
	• Locomotive emissions	• Support purchase of cleaner diesel locomotives per the fleet average agreement between the railroad industry and the EPA. Continue purchase of cleaner diesel locomotives and use of cleaner diesel fuels, and advance research on/demonstrations of dual fuel and spark-ignited LNG locomotives (1)
Legislative Needs	• Rail crossing funding	• Expand grade crossing funding including creation of possible state or national trust funds
	• Railroad match for construction funds	• Develop an equitable match formula balancing benefits to railroads, other private sector interests, and the general public
	• Funding flexibility to meet needs (interchanges for rail and truck access)	• Develop programs to adequately fund intermodal yard access and facilitate rail access to ports and industrial areas
	• Cooperation of railroads with local agencies and Caltrans	• Develop guidelines for model public-private sector agreements on joint transit/commuter rail/freight use of rail facilities and R/W, and on other issues
Regional System	• Congestion impacts (grade crossings)	• Work to expand grade crossing improvement funding including creation of possible state and national trust funds to provide adequate funding for grade separations, use of constant warning time gate devices, and better crossing /traffic light interface
	• Competitive rail rates	• Ensure that at least two national rail freight carriers continue to serve the region and that the implementation of clean air locomotives does not increase rail freight rates proportionally more than rates of competitors
	• Growth /decline of rail spurs and feeders	• Facilitate development of short line feeder operations and maintain right-of-way to add spurs and sidings to serve industrial plant (2)
	• Abandonment of rail lines	• Preserve rail R/W for possible future use, including commuter rail or light rail with potential for off-peak/night time rail local freight access (as in San Diego and Baltimore)
	• Role or railroads in regional freight movement	• Develop plans for optimizing both rail and truck utilization where each mode is used to best advantage relative to commodity type, requirement to expedite service, and service distance--local, hinterlands, and transcontinental. This is an economic issue: need to develop the most efficient, seamless regional goods movement system (1)
Other	• Crossing safety	• Provide adequate funding for crossing improvements and enforcement (including grade separations), and conduct demonstration projects on new grade crossing warning devices
	• Noise	• Same as above potential solution, with the caveat that demonstration projects would include those that reduce

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
	• Cooperation of railroads with local agencies and Caltrans	noise impacts on neighborhoods • Develop guidelines for model public-private sector agreements on joint transit/commuter rail/freight use of rail facilities and R/W, and on other issues

Notes:

(1) Note with regard to railroad line capacity, signaling systems, improvements to rail yards, intermodal terminals and rolling stock such as locomotives and cars: unlike airports, highways, and ports which are publicly owned and funded, the railroads furnish their own equipment and facilities through private sector funding and finance, and are responsible for planning and implementing such improvements. This problem and its potential solution are included for the sake of completeness. Most of the items labeled (1) are already being addressed by industry.

(2) Note that the large, national freight railroads have been receptive to the idea of maintaining branch line service by short line carriers, and have encouraged this development wherever possible.

GOODS MOVEMENT ADVISORY COMMITTEE

Matrix of issues, problems, and potential solutions

INTERMODAL FACILITIES

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
Growth of Rail Traffic	• Access to interchanges	• Provide adequate roadways, signalization, and room for truck queuing and parking
	• Non-intermodal train traffic generation	• Provide adequate functional storage/working capacity in rail yards to provide separation of bulk, carload, and intermodal loading operations, and adequate main line capacity for faster classes of traffic to bypass slower trains (1)
National Competitiveness	• ITS interface	• Provide funding for research, demonstration projects, and implementation of ITS improvements to facilitate port and intermodal terminal operations
	• Communication between task forces	• Develop the mechanism for broad communication and cooperation between all goods movement-related regional, state, local, national, and industry task forces
	• Port-rail interface	• Provide adequate track capacity and signaling for lead tracks to port intermodal facilities and provide adequate room for storage of railcars, trucks, chassis, and containers (1)
	• Efficient utilization of facilities	• Transportation demand management improvement measures
Terminal and Highway Access	• Time-sensitive cargo and truck movements	• Provide adequate infrastructure for trucks to access intermodal terminals and major shipping origins/destinations, including lane capacity, truck lanes if feasible, intersection improvements, and ITS improvements to speed truck traffic, warn truckers of incident areas, reduce circuitous trips/cut the number of empty back hauls, and provide better connections between shippers, truckers, ports, and intermodal terminal operators
	• Congestion/accidents	• Reduce congestion and accident impacts by providing adequate highway and intersection capacity, signalization, ITS improvements, expanding hours of terminal operation, and developing better rapid response procedures in event of truck accidents and general highway accidents impacting truck movements
	• Trucks delayed by recurrent traffic congestion	• Conduct feasibility studies on truck-only lanes, their potential improvement of access to intermodal terminals, and means to fund such truck lanes as do prove feasible
Inter-Modal Transfer	• Truck capacity at points of entry to intermodal yards-operations or capacity changes	• Provide entry/exit gates of adequate capacity and with improved check-in and check-out procedures for trucks, and facilitate traffic circulation in the vicinity of these intermodal yards including improved traffic

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
		signals and truck staging/parking areas
Air Quality Issues	• Diesel particulate exhaust components classified as toxic emissions	• Promote research on clean fuels/clean diesel engines used by trucks accessing intermodal facilities and intermodal transfer equipment; conduct pilot projects on new technologies to reduce toxic particulates
	• New air quality standards need to be met (stringent controls on diesel)	• Same as previous item
	• Need to turnover diesel engines or find alternative fuel engines	• Develop programs to provide tax credits to replace highly polluting diesel engines with clean diesels/clean fueled diesels/alternative fueled engines such as CNG, LNG
Other	• Public-private partnerships	• Facilitate public-private partnerships including port, local, and county jurisdictions in planning, developing, expanding, and operating intermodal facilities

(1) Note with regard to railroad line capacity, signaling systems, improvements to rail yards, intermodal terminals and rolling stock such as locomotives and cars: unlike airports, highways, and ports which are publicly owned and funded, the railroads furnish their own equipment and facilities through private sector funding and finance, and are responsible for planning and implementing such improvements. This problem and its potential solution are included for the sake of completeness. Most of the items labeled (1) are already being addressed by industry

GOODS MOVEMENT ADVISORY COMMITTEE

Matrix of issues, problems, and potential solutions

TRUCKS

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
Air Quality Issues	• Refusal to make low sulfur fuel	• Develop regulations requiring the petroleum refining industry to produce low sulfur fuel in California
	• Interstates allow fueling activity to take place out of state	• Negotiate with nearby states to impose a fuel tax differential in border areas
	• Tire dust, $PM_{10,}$ and $PM_{2.5}$	• New regulations on PM 10 and PM 2.5 to force cleaner-burning engines; regulations on use of re-tread tires and possibly on other ways to reduce tire dust, entrained roadside dust etc.
	• Need for alternative fuels	• Research and demonstrate clean fuels such as CNG, LNG for trucks and implement clean fuels goods movement corridor(s) with adequate fueling stations and repair facilities
	• Idling by trucks waiting to enter loading or discharge areas	• Regulations on excessive idling by trucks; provision of adequate truck staging and queuing areas and truck parking to reduce the need for idling
	• Lack of information on truck staging areas and routing	• Create public logistics information systems, including telecommunications, route maps, etc.
Legislative Needs	• Control over truck fuels in California (Federal)	• Sponsor new federal legislation to ensure cleaner truck fuels and alternative truck fuels will be provided in California and adjacent states
	• Common Federal Standards	• Enact uniform national standards on truck emissions to ensure that clean fuel vehicles will be available
	• Freight Factor	• Develop/refine freight factors to allow California and its urbanized areas to get a fair share of federal funding in formula grants for highway infrastructure
	• Phase out of non-compliant trucks	• Develop regulations to phase out obsolete and polluting truck types in urbanized areas, and consider buy-out programs/tax incentives to encourage voluntary retirement of said vehicles
	• Need for local ordinances relating to trucking	• Develop more comprehensive, coordinated, and uniform local ordinances regulating trucking so that a coherent network of truck routes and truck restricted routes can be developed, adequately serving industrial/commercial areas and protecting residential areas
Regional Issues	• Equity of impacts/funding	• Develop expenditure/benefit measures so that the areas benefiting the most from truck access will pay their fair share and impacted areas will pay less
Growth of Truck Traffic	• Traffic Signals	• Develop adequate signaling in areas heavily used by trucks, including signal phasing, turns, and signal progression
	• Road Radius/Geometrics	• Improve road geometrics in areas used by trucks, to permit large-radius vehicles to maneuver safely

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
	• Competition between trucks & cars for limited highway space during terminal operation hours	• Adjust hours in freight and intermodal areas, and at commercial and industrial loading docks to permit trucks to load before, between, and after the peak hours of the day
	• Congestion	• Reduce congestion impacting trucks by providing adequate roadways for trucks such as dedicated truck lanes, and furnishing fast and attractive public transit alternatives to reduce SOV operation along major truck routes
	• Need for demand management	• Promote effective traffic demand management (TDM) for trucks where appropriate
	• Safety	• Promote truck driver and vehicle safety regulations, new research in safer truck technology relating to brakes/anti-jackknifing devices, radar and video devices to warn drivers of encroaching passenger vehicles, etc.; and tax incentives to promote implementation
	• Incidents involving trucks	• Support improvements in incident management, e.g. Freeway Service Patrol for trucks, standby "rotator" tow trucks for clearing lanes faster, MAIT Team GPS mapping at accident sites
	• Hours of operation	• Expand hours of operation for truck terminals, loading docks, and intermodal facilities so that more trucks can operate off the peak
	• Noise	• Develop lower-noise truck engines and enforce proper adjustment of truck brakes to reduce screech; support tire and pavement noise reduction research
	• Costs	• Encourage off-peak loading by trucks and use more fuel-efficient engine technologies
	• Pollution	• Adopt operational measures such as promoting off-peak loading so trucks can run at a more constant speed; regulate against highly polluting engines and develop incentives to encourage adoption of new cleaner burning engines
	• Pavement damage re: axle loadings	• Develop standards for road construction that will be less susceptible to damage by heavy vehicles
	• Sign visibility/size of truck	• Ensure that highway signing is high enough/frequent enough that motorists are adequately advised of upcoming turnoffs/interchanges/road conditions
	• Mixed traffic operation with cars	• Provide more funding for adequate arterial highways and additional mixed flow lanes in areas used by trucks, for truck-only lanes and truck climbing lanes where warranted, and interchanges and other facilities adequate for the wider turning radii/other requirements of trucks
	• Insufficient infrastructure	• Provide adequate infrastructure to accommodate truck traffic growth and mitigate impacts, including added mixed flow lanes, truck-only lanes, interchanges, signalization, ITS, truck stops and truck staging areas, etc.
	• No alternatives for freight	• Facilitate alternative freight service where feasible by

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
	movement	adding rail intermodal facilities for longer-haul traffic
	• NAFTA (safety/INS/etc.)	• Develop adequate truck operational and safety standards in relation to NAFTA and enforce these standards strictly; provide adequate inspection of trucks at INS stations
Growth of Truck Traffic (Contd)	• Reliability problems	• Improve reliability by encouraging ITS, GPS, and other new technologies; also by expanding truck loading hours away from the peaks, providing truck-only lanes where necessary, adequate transit alternatives to divert SOVs, etc.
	• Accessibility problems	• Provide adequate freeway, arterial, interchange, and driveway access for trucks in commercial, industrial, port, and intermodal yard areas
	• Clearance	• Replace inadequately low overpasses and provide sufficient horizontal clearance for truck maneuvers
	• Limitations on highway capacity to accommodate high volumes of trucks	• Include investigation of automated truck facilities in long-range planning: such facilities being intended to promote improved efficiency, higher freight volume throughput, and increased reliability of truck movements
• National Interest	• Hazardous waste transport	• Improve safety standards for operation of hazardous wastes by road, including designated routes and adequacy of fire protection or pollution control services en route; promote demonstration projects of new types of (safer) trucking equipment for waste transport
	• Federal freight factors/corridors	• Develop equitable freight factors for funding roads in areas heavily used by trucks and develop national goods movement corridors
	• Fuel prices	• Enact legislation to prevent unfair high prices for truck fuel in certain areas of the country
	• California standards	• Promote uniform safety standards in all states
	• Facilities for trucks	• Develop adequate truck stops on all federal highways heavily used by trucks
	• Labor	• Ensure that all truck drivers are fairly treated with regard to wage levels, benefits, equipment safety, etc.
	• Safety	• Adopt safety regulations that will reduce fatalities, injuries, and property damage both to truckers and autos
	• Competition	• Maintain reasonable levels of competition between carriers
	• Reliability/Speed	• Provide adequate capacity and safety in truck operations to reduce congestion and incidents/accidents
	• Regulations/Fines/ Inadequate enforcement	• Provide adequate enforcement of existing regulations relating to safety and axle loading
	• NAFTA	• Ensure that under NAFTA, highway safety and truck driver wages are not compromised; provide adequate facilities in border areas for truck fueling and repairs, truck loading, splitting or assembling double trailers, etc.
	• Successor to diesel engines	• Promote research and development on new types of

	and their power/safety considerations	truck engines and fuel types, provided current standards of engine power and safety are not compromised
	• Hours of operation	• Extend hours of operation for port, intermodal, and other truck facilities away from the peaks
	• Intermodal transport	• Develop adequately located, sized, and designed intermodal facilities serving trucks
	• Size/weight of trucks	• Ensure that the size of trucks is not too large for safe operation on local streets and highways, and that weight is not excessive so as to be destructive to pavement
	• Big trucks	• Consider longer combination vehicles only on designated routes with adequate lane width and safe operating conditions, and with pricing commensurate with the loads imposed on the highways
Terminal and Highway Access	• Access to truck terminals	• Support local agencies' engineering analysis of streets eligible for terminal access
	• On ramps/off ramps	• Construct on and off ramps with reasonable geometrics and gradients to allow trucks to negotiate them with safety and without excessive speed loss/need to brake etc.
	• Geometrics on arterials	• Develop standards for geometrics on arterial streets, suitable to truck operation
	• Loading zones	• Provide adequate loading zones for trucking, including off-street sites, adjustable loading docks, adequate room to park and maneuver, good signing, etc.
	• Grade separations	• Provide grade separated roadways where there is heavy truck traffic crossing railroad lines, and also where heavy truck routes cross each other
	• Pavement condition/rehabilitation	• Maintain adequate pavement condition for operation of heavy trucks, and provide for rehabilitation of damaged or worn roads to improve safety and reduce fuel use and equipment damage
	• Visibility	• Provide adequate visibility along truck routes, including areas with gradients, curves, passing lanes, railroad crossings, etc., or prone to fog or rock slides
Intermodal Transfer	• Local land use regulations	• Adopt local land use regulations that require adequate clearances, parking areas, loading areas, etc. for truckers where they normally operate; while preventing truck parking on local streets overnight in sensitive residential areas
	• Retrofit of access in older areas	• Retrofit highways and other infrastructure in older industrial areas served by trucks and at older intermodal facilities, so that trucks can operate safely and economically in these areas
	• Design of industry and facility operation	• Design intermodal facilities/industrial sites for truck use, with adequate entry/exit gates, traffic signalization, parking, etc.; and develop safe operating procedures for trucks accessing these areas
	• Location	• Locate intermodal transfer facilities in areas with convenient, easy access to arterials and freeways, ports, rail yards, freight forwarders, warehousing, and the like; and ensure that there are adequate intermodal

		facilities in the Inland Empire and in outlying areas
	• Overcrossing clearances	• Maintain overcrossing clearances near intermodal facilities so that trucks can negotiate these areas with safety
Safety/Other	• Driver testing: ability/ controlled substance abuse	• Maintain high standards of truck driver testing and prevent substance abuse by truckers on duty
	• ITS applications for trucks	• Develop, test, and deploy ITS applications to facilitate safe and economical truck operations, and allow trucking companies to better manage their fleets and provide reliable customer service
	• Speed limits	• Maintain safe and economical speed limits applicable to trucks on all truck routes, and enforce these limits
	• Signals	• Provide clearly visible traffic signals for all through and turning movements at intersections used by truckers, and advance signals where appropriate
	• "End of trip" capacity	• Develop truck stops, truck staging areas, adequate truck parking, and other facilities to allow trucks to be taken off the highways when not in use and provide a maximum of driver comfort and utility
	• Gradients where trucks are prone to stall	• Determine which hills/other areas are a particular danger because of trucks stalling, and furnish adequate places for the vehicles to pull off and park, phones to call for repair and towing service, etc.

GOODS MOVEMENT ADVISORY COMMITTEE

Matrix of issues, problems, and potential solutions
AIRPORTS

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
Growth of Air Traffic	• Insufficient capacity	• Evaluate airspace and expand airport runway/terminal capacity
	• Air freight capacity	• Expand air freight capacity, including runways, terminals, and ground access
	• Lack of information on demand	• Improve and expand research on air passenger and air cargo demand on southern California airports
	• Competition between the needs of passengers and cargo transport	• Determine the optimum mix of passenger transport and cargo transport for airports in each component of a regional airport system, based on demand and other factors
	• Design of new facilities	• Design new airport facilities to provide adequate air cargo capacity, in terms of runways, terminals, and ground access
	• Mix of freight and passengers in airport design	• Ensure that new/rebuilt terminals include adequate provision for air cargo handling, including cargo on all cargo aircraft and belly cargo
	• Feasibility of all-cargo airports from the viewpoint of passenger carriers	• Determine whether passenger carriers would split their operations, with passenger service continuing at existing airports and freighter service using new, all-cargo airports
	• Need to use extant & former military bases	• Consider the re-use of closed military bases and joint civilian/military use of other bases for air cargo expansion purposes
	• Adequacy of customs services	• Determine customs facilities required at new cargo-handling airports
	• Public opposition to expansion	• Consider expansion of airport capacity in outlying areas
	• Increased noise	• Adoption of new, low-noise jet engines and sound-proofing programs
	• Time of day restrictions	• Determine equitable time of day restrictions in different areas, and whether adjustments of flight paths can ameliorate noise problems in some localities
National Competition	• Competition from airports outside SCAG region	• Develop sufficient air cargo facilities so that air freight will not be diverted/ driven to airports in other states
	• Landing fees	• Determine the extent to which increased landing fees would divert cargo to airports in other states--with possible adverse economic impacts for our region
	• Timeliness	• Adopt measures to speed up air cargo handling and airport ground access so that shipments will be time-competitive with airports in nearby states
	• Repackaging through cargo	• Develop efficient and automated facilities for repackaging through cargo, including “all air” cargo and air cargo using trucking for part of the line haul
	• Need for free enterprise zones	• Promote enterprise zones, foreign trade zones, etc.

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
	adjacent to airports/air freight terminals	around airports and particularly all cargo airports to facilitate local manufacture, forwarding, warehousing, etc. and improve the attractiveness of southern California airports for air shipments
	• Locational decisions	• Determine which locations will be optimal for cargo airport development based on distribution of demand, travel time, congestion, and other factors
	• Inland airport expansion	• Promote development of cargo airports in the Inland Empire and at other inland points with adequate land, freeway access, and trucking facilities
	• Local versus regional air cargo needs	• Determine whether national and/or international air cargo growth be more efficiently focused on specific regional airports; and whether certain commercial/ industrial sections and other activity centers will still require direct/local area air cargo access
	• Impacts of noise	• Determine whether noise curfews/restrictions would have adverse impacts on international air cargo flights at some airports
Ground Access	• Local arterial access	• Improve local arterial access to airports and particularly cargo airports, including improvements in roadway and intersection design, signaling, etc.
	• Freeway access	• Improve freeway access to airports and particularly cargo airports, including lane capacity, interchanges and ramps, etc.
	• Airport circulation	• Provide roadway systems in and around airports that allow room for trucks to maneuver and gain easy access to air cargo terminals
	• Dedicated space for trucks	• Provide adequate truck staging and parking areas in and near airport cargo areas
	• Peak hour conflicts	• Take steps to reduce peak period traffic congestion in airport areas, including off-site automobile parking and direct rail transit access to terminals, to free up space for trucks used in air cargo movement
	• Potential service to/impacts of truck lanes on outlying airports	• Determine whether truck lanes will improve access/delivery time in relation to air cargo handling facilities at outlying airports
	• Potential impacts of high speed rail on air freight	• Determine whether high speed trains or MAGLEV with dedicated freight capacity would positively or negatively impact the use of air freight (i.e. primarily provide a feeder service, or function to provide competition with air)
	• Light rail and other passenger rail system service to airports	• Determine whether use of light rail, Metrolink etc. will provide significant improvements in travel time and airport access and thus free up capacity needed for airport goods movement ground access

Inter-modal transfer	• Air cargo capacity constraints at existing airports in highly urbanized/congested areas • Need for capacity at inland airports relating to intermodal transfer needs • Increased capacity needed at intermodal facilities	• Investigate the effect of increased processing/ throughput time at existing constrained airports on increasing the handling potential of relatively unconstrained/ new airports in outlying areas • Expand capacity for air/road intermodal transfer at inland airports; nearby rail intermodal yards are helpful for logistics reasons: maintaining supply lines/diverting shipments as needed (high priority service via air, lower priority by rail) • Design intermodal facilities with adequate capacity for air cargo transfer movements
Air quality issues	• Particulates i.e. pm 2.5 & pm10 • Need to use low sulfur fuels • Need to increase use of alternative fuels • Ground service vehicles--fuel/power plant changes • Ground access • Need to reduce vehicle demand • Reduce the number of vehicles coming into airports	• Expand use of alternative fuels and clean diesel engines • Adopt low sulfur fuels for trucks and service vehicles used in air cargo movements • Expand use of alternative fuel vehicles, including air cargo delivery trucks and vans • Expand the use of alternative fuel and electric vehicles for ground service at cargo and other airports; provide fueling/charging stations • Improve ground access for trucks and other vehicles at airports to increase running speeds and reduce idling emissions; improve transit access to terminals • Promote more use of off-site parking at airports and improve transit access as an offset to possible increasing truck emissions at cargo terminals • Develop alternatives to private vehicles; serve remote terminals with buses thus freeing up capacity needed for airport goods movement ground access
Legislative needs	• Federal regulations on operations • Need more flexibility to use Federal airport funds	• Study federal regulations related to operations and lobby for flexibility to make operational improvements as long as safety and emission standards are maintained • Lobby for legislation permitting more flexible use of airport funds to permit optimization of the regional air cargo transport system and to allow air quality offsets
Regional System	• High capacity & low utilization of some facilities	• Explore incentives to redirect air cargo activity to relatively underutilized facilities
Other	• New technology utilization • Special facility needs for air cargo handling determined by full-service logistics • Special facility needs determined by air cargo	• Study the productivity advantages of new and more automated methods of cargo handling and sorting, and initiate demonstration projects for promising new technologies in this and other areas • Investigate special facility/technology needs, including extensive automated or semi-automated parcel handling and storage, packaging and labeling requirements, assembling, optimal kinds and sizes of containers, dispatching, tracking, inventory control, telecommunications needs, and kinds of intermodal service and truck equipment required • Determine special air cargo facility/technology/ operational needs as required by all-cargo carriers,

	provider or service sector	passenger carriers, warehouse operators, brokers, freight forwarders, consolidators/deconsolidators, etc.
	• Training for staff to utilize new technologies	• Adopt new training programs to familiarize staff with new technologies used in trucking (e.g. ITS), in cargo transfer (e.g. automated conveyer and stacking systems), and vehicle propulsion (e.g. clean fuel engines)
	• Potential impacts of e-commerce on air cargo demand and corresponding needs for facilities	• Investigate and monitor e-commerce impacts on air freight; determine the extent to which it will increase demand for air shipments (that is, through better marketing/ability to order on-line) and the extent to which it may reduce the demand for air freight (e.g., information rapidly transmitted electronically to remote markets + local manufacture of goods—such as compact discs—that no longer need be imported by air)

GOODS MOVEMENT ADVISORY COMMITTEE

Matrix of issues, problems, and potential solutions

MARINE PORTS

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
Growth of Port Traffic	• Hours of operation	• SCAG will work with the ports, terminal operators, unions, freight forwarders and consolidators, warehouses, and distribution centers to extend hours of operation to allow truckers to access the ports and delivery centers during off peak periods
	• Federal funding	• Obtain federal funding for dredging, land-side access, technology demonstration projects, and other needs
	• Communications	• ITS research and demonstration projects to improve communications between terminal operators, draymen, and shippers
	• Port capacity	• Implement current plans to expand terminal capacity on landfill and recycle older terminal areas; consider off-site storage of empty containers
	• Intermodal transfer capacity	• Continue current plans to expand on-dock and near-dock intermodal rail capacity
	• Community impacts of growth	• Take steps to reduce congestion on access roads to the ports
National Competition	• Operational costs	• Analyze operational cost implications of improvements to ensure that the ports will remain competitive with other seaports
	• Competitive infrastructure systems	• Provide funding for new port, highway, rail, and intermodal infrastructure that will be competitive with other world ports, and investigate new marine, terminal, and landside transport technologies as may be useful
	• National corridors	• Study and identify necessary highway access and railroad grade crossing improvements along the southwest passage from California to Texas, facilitating expansion of trade between Los Angeles and trade regions eastward to the Gulf Coast
Land-side Access	• Access to I-710/605 etc.	• Study feasibility of expansion of mixed flow lanes, addition of special truck lanes, and/or improving interchange capacity on the 710, 605, and other freeways serving the ports
	• Freeway access	• Improve freeway access by providing more capacity as needed and using ITS to enhance freeway operations; improve interchanges and access roads to freeways
	• Off site storage for containers	• Consider off-site storage of empty containers and investigate possible sites, means of drayage, logistics, etc.
	• Weight restrictions on trucks	• Consider designating/adding overweight truck corridors within the port area
	• Access on local arterials	• Fund improvements in the capacity and design of local arterials in the port area, including intersection design, signaling, synchronization of lights, etc.

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
	• Dispatching/commercial vehicle operations	• Develop improved communications systems including use of the internet to better coordinate dispatching and scheduling of drayage trucks
	• Need to identify study areas	• Determine the most congested areas and investigate potential traffic flow improvements
	• Peak hour congestion	• Work with the ports, terminal operators, unions, freight forwarders and consolidators, warehouses and distribution centers to extend hours of operation to allow truckers to access the ports and delivery centers during off-peak periods; investigate reserved truck lanes
Inter-modal Transfer	• Capacity of intermodal transfer facilities	• Continue present plans to expand on-dock rail loading at new terminals on landfill or at recycled, older marine terminals; evaluate the need for additional near-dock facilities
	• Inland ports	• Determine the feasibility of inland container facilities, probably in synergy with domestic TOFC/COFC terminal development, industrial growth and warehousing; consider interchange design and other capacity improvements to ensure efficient operations of any such terminals; determine logistics of rail and truck operations for combinations of domestic and port movements
Air quality issues	• Vessel fuel and operational measures	• Investigate clean tugs, consider slowing vessels, and work with the navy to determine feasibility of moving shipping lanes offshore
	• Control of Federally regulated sources i.e. shipping lane controls	• Determine who will regulate emissions related to the shipping lanes, and how this can be done without jeopardizing shipments to the LA-Long Beach ports
	• Need air credits	• Establish ways that the ports can obtain air credits for projects on and off site, to permit needed expansion of port operations
	• Particulates, i.e. PM 2.5 & PM10	• Evaluate engine technologies that can reduce particulates, and recommend those that can be implemented in a timely and cost-effective manner
	• Limited alternative fuel use for vehicles	• Encourage the use of alternative fueled vehicles in dock areas--for terminal and drayage operations--using fuels such as LNG and CNG, where these operations are safe, economical, and operationally feasible
	• Clean diesel fuel use	• Consider the need for national Diesel standards
	• Limited use of new Technologies	• Investigate new technologies for reducing emissions, including alternative fuels, expanded use of electric power, etc
	• Increasing emissions with growth	• Explore operational measures that will reduce running and idling emissions in the port area
Legislative needs	• Need fair share of federal resources i.e. share of dredging fees	• Obtain a fair share of federal funding for dredging projects to accommodate deeper draft vessels
	• Need adoption of federal freight factor	• Refine and adopt a federal freight factor to allow California, including the southern California ports, to obtain a fair share of funding for freight infrastructure and port access improvements

ISSUES	PROBLEMS	POTENTIAL SOLUTIONS
	• Need state money to match federal categories • Need funds dedicated to goods movement projects	• Obtain state funding to match federal project funds for needed port infrastructure improvements • Lobby for a dedicated fund for goods movement improvement projects, including port access projects
Regional issues	• Capacity of the 710, 605, and other port-access freeways	• Study feasibility of expansion of mixed flow lanes, addition of special truck lanes, and/or improving interchange capacity on the I-710, I-605, and other freeways serving the ports.

Freight Issues, Implications and Options in the Moving Forward Document

The document **Moving Forward** was developed by SCAG staff in July 2000 for presentation to SCAG's Transportation and Communications Committee (TCC), and was intended to provide information towards refinement of the Draft 2001 Regional Transportation Plan Update. The following is a discussion of the goods movement issues, implications, and options included in the **Moving Forward** document and incorporating suggestions made during the Goods Movement Advisory Committee at its Sept. 20, 2000 meeting.

The fourteen adopted GMAC projects, focus areas, and needed studies are as follows*:

a) Truck Lanes
b) Regional Railroad Grade Crossing Improvements
c) Alameda Corridor
d) Alameda Corridor East and Orangethorpe Corridor
e) Aviation: Air Cargo and Ground Access Issues
f) The I-710 Gap Closure
g) NAFTA
h) Southwest Passage
i) Improvements in Freight Movement Productivity (Extended Hours of Delivery)
j) Subregional Freight Studies
k) 2000 Air Quality Management Plan/Heavy Duty Diesel Emissions and Mitigation
l) Clean Fuel Technologies for Goods Movement
m) Transportation Funding for Freight Movement
n) Regional/Subregional Equity in Funding/Project Development

* These are not presented in a priority order, as no priority was assigned by GMAC when the list (which originally had fifteen items) was developed by the Committee.

Issues, Implications, and Options

a) Dedicated truck lanes

Issues: Dedicated truck lanes need to be studied to determine if they would provide the anticipated benefits, including reduced emissions, fewer accidents, less congestion, and lower cost trucking operations. A key question is whether truckers will find the benefits worth the payment of tolls or other special user fees, to help defray the substantial construction costs.

Implications and Options: During the meeting, it was noted that dedicated truck lanes should be studied as an interconnected system that could link the Ports of Los Angeles and Long Beach with the Inland Empire and the high desert via Interstate 710, State Route 60, and I-15. In addition, the system to be studied should include truck lanes on I-5, and a common pricing arrangement should apply to all. Multiple payment options and user fees that are low enough to encourage use, should be considered.

b) Regional Railroad Grade Crossing Improvements

Issues: Regional railroad grade crossing improvements have been identified as a need for some time, but further information is needed on their costs and benefits – including those to the freight railroads—in order to prioritize expenditures. Complicating this process is the fact that there are differences between methodologies used to quantify delay and those used to assess other benefits in the studies conducted thus far.

A special regional railroad grade crossing issue relates to possible need for a Colton Crossing railroad-railroad grade separation.

Implications and Options: During discussion at the GMAC meeting, it was pointed out that under AB 2928, the Governor's Congestion Relief Program, the Subregions and County Transportation Commissions would examine the east-west main line grade crossing studies conducted for the Alameda Corridor East in the San Gabriel Valley (Los Angeles County), for the Orangethorpe Corridor in Orange County, for San Bernardino County, and for Riverside County, and develop a common methodology for assessing delay and other impacts. Therefore, for these main lines, the differences in methodologies will have been reconciled.

However, grade crossings for other main lines including the Saugus Line, the Coast Line, and the Palmdale Cutoff—and for some of the regional branch lines—have not been subject to a comprehensive study. The work begun in response to the Congestion Relief Program will eventually have to be extended to these other lines, and will undoubtedly benefit from the conclusions of the AB 2928 work, which should help establish a grade crossing methodology with regional applications.

With regard to Colton Crossing grade separation project, it was pointed out that the most immediate benefit would be to passenger rail users traveling from San Bernardino to Riverside and Orange Counties. Delay to Metrolink trains approaching Colton Crossing from the north or south can impose major disruptions in schedules under present day conditions. On the other hand, for transcontinental freight movements, a delay of 5 to 10 minutes or so at this crossing would have much lower impact on scheduled runs of several days duration, so crossing delay at this location is not likely to be of major concern to the railroads until future years after freight train densities have build up.

c) Alameda Corridor – no additional issues presented

d) Alameda Corridor East and Orangethorpe Corridor

Issues: A question was raised in the original document concerning the feasibility of consolidating most Union Pacific (UP) freight traffic on the old UP Main Line and off the Alhambra Line west of Pomona on the Alameda Corridor East, so as to reduce grade separation capital requirements. The rationale for a shift in freight traffic to the more southerly line is that the Alhambra Line has steeper gradients, more grade crossings, a narrower R/W in places (i.e. through the Alhambra

Trench, which the most part is wide enough for only double track), and poor access to the major East LA Yard (via the winding "River Line" along the LA River).

Implications and Options: Although the UP-SP merger agreement documents had indicated that the UP would focus its traffic on the old UP main line west, it is understood that the ACE Project staff have thus far obtained no guarantee from the railroad that they would route their trains preferentially on the old UP line. Further, the Alhambra Line provides a direct route for main line freight trains coming from the north, through the San Fernando Valley to City of Industry; it is also needed for local freight, and has passenger rail potential. Further it is not at all certain the extent to which through freight traffic could be re-directed to the other line in view of growing levels of port and domestic rail traffic.

A better recommendation at this point would be to evaluate the regional railroad main line system and determine the best ways to enhance railroad throughput and productivity, rather than focusing on consolidation or specific corridors. This evaluation would have to include rail freight and passenger movements and maintenance of high standards of service for all rail users.

e) Aviation: Air Cargo and Ground Access

Issue: Without sufficient room to handle air cargo, the SCAG region could lose a lucrative segment of commerce to other regions.

Implications and Options: The region needs to provide adequate capacity and reliability for trucks used in ground access, and to evaluate how much future air cargo will move through LAX in light of the action taken by the Regional Council to focus airport development in general in Orange County, in the Inland Empire, and in North LA County. Consideration should be given to developing new all-cargo airports on closed military bases; promoting development of air cargo and related industrial and handling facilities in the Inland Empire; and developing and implementing plans to alleviate congestion impacting trucks serving cargo terminals

f) The I-710 Gap Closure

Issue: Environmental and construction impacts on the City of South Pasadena are at the core of an on-going debate on whether to close the gap in Interstate 710. Even if the gap is closed, trucks are banned from using it.

Implications and Options: The 710 Freeway gap closure project as presently conceived would divert commuter traffic moving from the I-10, SR-60, I-5, and I-710 freeways to Pasadena, which would provide some alleviation of congestion impacting truck traffic using the 5 Freeway on the segment between the 710 Freeway and the 110 Pasadena Freeway. However, it would not permit trucks to directly access the 210 Freeway from the 710 Freeway.

A potential solution is to modify the Interstate 710 gap closure project with the construction of four bored tunnels under South Pasadena to avoid neighborhood disruption/damage. Trucks

would be allowed to use the I-710 project thus modified, so that direct 710-210 truck movements are possible, permitting trucks to bypass downtown Los Angeles and reducing the load on the 5 Freeway and others. A toll on cars and trucks would be used to pay for the additional cost of the bored tunnels above and beyond the expenditures for the cut-and-cover underground roadway through South Pasadena that Caltrans has indicated it can fund.

In discussion in the Committee, it was noted that this solution would require further study, as questions of underground fault lines, the water table, etc. would need to be investigated before the feasibility and costs of bored tunnels in this location could be determined. If truck lanes are implemented on the 710 Freeway from the San Pedro Bay Ports to downtown Los Angeles, such truck lanes would logically be extended northward to use any such bored tunnels as might be incorporated into the gap closure project--allowing easy access from the 710 Freeway to the 210 Freeway. It was further noted that diversion of commuter traffic to a 710 bored tunnel gap closure project would also have some benefits for truck traffic using the 5 Freeway.

Finally, it was suggested that other freeway gap closure projects, such as the 30 Freeway between the San Gabriel Valley and San Bernardino, would also provide major goods movement benefits, and may also warrant endorsement by the Goods Movement Committee.

g) NAFTA

Issues: With respect to the North American Free Trade Agreement (NAFTA), a major issue is the safety, environmental, and labor impacts of cross-border truck traffic.

Implications and Options: None presented in the original paper, but discussion in the GMAC indicated that the Long Range Finance Task Force is working on NAFTA issues.

h) Southwest Passage

Issues: The major issues relating to the Southwest Passage concern ways to fund and implement the necessary capacity, safety, and environmental improvements necessary to implement this important multi-state and international trade corridor.

Implications and Options: None presented in the original Moving Forward paper. (SCAG elected officials and staff are working cooperatively with Texas, Arizona, and New Mexico, as well as with Caltrans, to resolve issues relating to the implementation of the Southwest Compact and the Southwest Passage.)

i) Improvements in Freight Movement Productivity (Extended Hours of Delivery)

Issues: None presented in the original paper. (Many larger warehouses and railroad intermodal terminals are open during night hours, allowing truck movements to be made other than during peak periods. However, few port terminals are open during evening hours, and many smaller businesses cannot operate longer than an eight to ten hour day.)

Implications and Options: None presented in the original paper. (However, there is broad agreement in the goods movement industry that hours of delivery should be extended, for whatever segments of traffic it may be practical to implement such measures. Benefits would include reduced highway congestion and emissions, fewer accidents and better utilization of truck drivers and trucking equipment.)

j) Subregional Freight Studies - no additional issues presented

k) 2000 Air Quality Management Plan/Heavy Duty Diesel Emissions and Mitigation; and
l) Clean Fuel Technologies for Goods Movement

Issues: Local air quality management plans call for heavy duty diesel emission reductions, among other steps to meet air quality standards. Major problems relating to diesel emissions include health impacts of particulates from engine exhaust and the availability and cost of low-sulfur diesel fuel.

It is the perception of some people in the trucking industry that new or hybrid diesel truck power plans required by clean fuels programs for goods movement could increase costs and weight, take up too much space on the trucks, and increase the difficulty of maintaining the vehicles. It is similarly felt by these parties that the cost of these new systems could be a burden to small trucking companies and owner-operators. Also, specialized fueling and maintenance facilities would be needed. Finally, if new alternative fuels are not subject to the taxes presently levied on diesel fuel and gasoline, there could be a major drop in funds available for highway construction and maintenance.

Implications and Options: Consideration should be given to promoting low-sulfur diesel fuel at least in California and adjacent states, and preferably nationwide. In response to the question of impacts on small trucking companies/owner-operators, studies will determine the costs to industry and to product delivery cost and price, resulting from a major conversion of the trucking fleet to clean fuels. In time, new clean-fuels technologies may become very viable for goods movement. Finally, consideration should be given to a user fee on clean fuels so that tax revenues are not lost for transportation infrastructure work, and to adoption other incentives (e.g. tax credits for purchase of new equipment) to promote clean fuels for goods movement.

m) Transportation Funding for Freight Movement; and
n) Regional/Subregional Equity in Funding/Project Development

Issues: Since the SCAG region is a national gateway for cargo to and from the Pacific Rim, elimination of delays and bottlenecks impacting goods movement is in the national interest. A major issue here is how to develop adequate levels of federal funding to compensate the region for conveying goods to and from the rest of the country. Another major funding issue is that subregions that experience pass-though cargo need an equitable share of freight funding, so that they are not unduly burdened with traffic congestion, environmental, and road repair impacts.

Implications and Options: An equitable freight factor should be developed to facilitate obtaining new federal funds for cargo movement through our region with fewer impacts; further to allow us to monitor where funds are expended for goods movement within the region to ensure that all of the subregions that are either negatively impacted, or have economic development potential relating to goods movement, are fairly treated. Comment was made that since the region is a gateway for international trade and experiences heavy pass-through cargo, this should have major emphasis.

Cross-Cutting Issues:

Several additional points were made in the goods movement section of Moving Forward relating to the inter-relationship between goods movement projects and other transportation functions:

- Many highway improvements, such as added lanes, intersection and ramp improvements, traffic light synchronization, and ITS projects, will benefit goods movement (trucks) as well as passenger vehicles and bus (transit) operations.

- Most of the rail line segments used by freight trains carry some passenger (Metrolink and Amtrak) trains also, and the predominantly passenger railroad lines also convey some freight traffic. Hence, most railroad-highway grade crossing safety and grade separation projects will jointly benefit passenger and freight train movements. Many of these projects will also benefit highway goods movement where trucks operate, and transit where buses cross the rail lines (by reducing delay and accident potential).

- If it were feasible to divert additional freight traffic to the old UP main line between downtown Los Angeles and Pomona, there could be a potential benefit in freeing-up track time and track space, or right-of-way, on the parallel Alhambra Line for use in passenger rail development (e.g. Metrolink).

- Development of more effective rapid bus, busway, or urban rail transit corridors, and additional Metrolink service, might benefit truck movements by reducing some of the private passenger vehicles on parallel routes. (Notwithstanding this, it should be noted that dedicated truck lanes were indicated to be the most effective way to reduce congestion impacts where truck volumes are substantial, per studies of performance indicators applied to projects in the ’98 RTP.)

Freight Factors

Beginning in the spring of 2000, GMAC created a Subcommittee on Freight Factors, to discuss the definition of a goods movement project, and develop evaluation criteria for nationally significant and regionally significant projects from a goods movement perspective. The intent is to develop criteria for inclusion of projects in the Regional Transportation Plan, that recognizes the importance of these projects to freight transport; and to assist in securing Federal funding for projects that generate economic benefits by supporting international commerce or by otherwise enhancing the national goods movement system.

The Subcommittee met several times during the spring, summer and fall 2000, and reported its results and recommendations to the full GMAC. It considered the use of freight factors in project evaluation by the Metropolitan Transportation Commission in the Bay Area, and freight factors studies in Minnesota, Oregon, and other states.

The definition of what is a goods movement project, as developed by Mr. Don Breazeale (Don Breazeale & Associates) and adopted by the Subcommittee in July, 2000 is: "Any project which directly or indirectly positively impacts the movement of goods (domestic or international). A goods movement project, if it is to qualify for further consideration, must demonstrate that the project will create a more reliable and/or cost effective flow of goods while contributing to air quality, safety, and general mobility, as well as to the growth of the economy based on the flowing criteria..."

The following is a paper developed by Don Breazeale & Associates and presented to the Goods Movement Advisory Committee in November, 2000. It includes the draft freight factors and evaluation criteria recommended by the Subcommittee, and the weighting scheme recommended by the Subcommittee workshop, for both nationally significant and regionally significant projects.

November 15, 2000

Dear GMAC Member:

Please find attached the draft weight factors and evaluation criteria for goods movement projects in the SCAG region. These are intended as guidelines for local governments, sub-regions and agencies of SCAG, and county entities to assess the relative value of their goods movement projects.

This rating system allows you to rate goods movement projects, one against the other, prior to submitting it to SCAG for inclusion in the Regional Transportation Plan (RTP) and funding consideration. It is very important to remember that your goods movement project must still compete with transit and highway projects for funding.

This is a model for goods movement projects to be evaluated on a "bottom-up" process from local to county to regional consideration of the projects.

Please note that safety does not have as high a rating value as some other items and this is not to imply that safety is not the most important factor in any project. If the project does not improve safety in goods movement, transit and/or vehicle movement, then it has questionable value from the start.

Executive Summary

After scoring your goods movement project with the attached matrix, the executive summary of your matrix should treat each factor in a brief paragraph with special emphasis on those items you feel have more positive or negative factors that the matrix grading system allows you to incorporate.

Also, your executive summary should address each of the following items:

Regional significance: project benefit and intermodal integration: Suggested criteria: Does the project benefit the overall transportation plan (RTP) for the region and how effective is it in connecting the current intermodal system?

- Cost effectiveness and match required, if applicable: Suggested criteria: Does revenue support cost and what funds are needed to match the grant we are seeking?

- Land use and environmental impact: Suggested criteria: Does the project make the best use of land necessary and what impact does it have on the quality of life, environment, etc.?

- Benefit to transit and transportation system: Suggested criteria: Does the project create benefits to the passenger and freight transit and transportation system or cause added problems?

- Project needs and development thereof: Suggested criteria: Do the project needs and development enhance or otherwise effect management of existing systems?

- Management of existing systems: Suggested criteria: Will the project under consideration positively or negatively impact the existing systems? If so, to what degree?

- Project readiness: Suggested criteria: Is the project ready to be implemented or is it dependent on another project being completed first, etc.?

FREIGHT FACTORS & EVALUATION CRITERIA

Freight Factors:

- Definitions
- Positive and negative issues
- Data sources

Definitions of the various freight factors, including the positive and negative issues involves in each one, and data sources that include detailed information for each of the factors that will be applied to the evaluation criteria are as follows:

A. Freight factors: Regional participation in federal funding for goods movement relative to impact on the national economy:

1. Safety:
Definition: The mitigation of injuries and/or death to citizens/property damage and loss.
Positive factors: Reduction in deaths, injuries, and property loss. Reduction in liability costs, industry reputation, potential revenue loss, and productivity.
Negative factors: Higher construction costs.
Suggested data source: California Highway Patrol, Caltrans, Public Utilities Commission, U.S. Department of Transportation (National Highway Traffic Safety Administration/National Center for Statistics and Analysis), Federal Railway Administration, private insurance industry statistics, and public outreach meetings. Measurement factors might be identified as slowed traffic, loss of time, extra fuel consumption, injuries and fatalities, damage to vehicles and goods, and clean up costs. There are statistics available for number of crashes by type of vehicle, location, time of day, road design factors, weather and other factors – per vehicle mile traveled.

2. Mobility and Accessibility:
Definition: Project investments shall improve traffic flow, relieve congestion, and enable residents, workers, and visitors to travel freely and quickly through the region as well as access the many economic, educational, social, medical, cultural, recreational, and

government opportunities and resources in the region. This also applies to the mobility of through freight/goods. Can also be measured in dollars saved.
Positive factors: Easy to understand and compare. Improved traffic flow will improve international commerce and tourism opportunities as a gateway and destination for the region and nation. One example would be; ITS technology will improve users and providers, public outreach meetings.
Negative factors: None.
Suggested data sources: Caltrans traffic data (inductive loops), Railroad traffic data, California Highway Patrol, Federal Highway Administration, transportation users and providers, public outreach meetings.

3. Reliability: just in time delivery:
Definition: Delivery of goods based on 95% to 99% confidence level without and safety compromise. Eliminates or mitigates the potential for interruption of goods movement, i.e., by providing alternative infrastructure to goods movement. User benefits and/or dollars saved.
Positive factors: Easy to understand and compare. Dollars gained/benefit realized for the private sector. Would allow creation of a master plan for the region's critical transportation infrastructure that is based sound economic evaluation. On time reliability will improve international commerce and tourism opportunities as a gateway and destination for the region and nation. One example is; ITS technology will improve reliability.
Negative factors: Loss of inventory tax based revenue by the local entity.
Suggested data sources: Transportation users and providers, Franchise Tax Board.

4. Equity:
Definition: Fair distribution of benefits and burdens. Funding requested/received in a national versus regional context plus the added benefit in dollars, which will flow by improving the transportation system.
Positive factors: Improve the safety, mobility and accessibility, reliability, economy and air quality.
Negative factors: Perception is that metropolitan regions receive a disproportionate share of infrastructure capital.
Suggested data sources: DOT planning H/Q, Caltrans planning, and local agencies.

5. Environmental impact:
Definition: The project must improve livability/quality of life in the region by reducing, mitigating or eliminating negative effects on people and businesses. Dollars saved due to environmental; compliance and cost in case of noncompliance with environmental redemption per local/state/federal standards.
Positive factors: Reduction in "idling" time for trucks, buses and autos. Reduced cost of "no project" due to environmental impact.
Negative factors: Dollars added to the project for compliance.
Suggested data sources: Environmental Defense Fund, State office of environmental planning, State water resources board, Coastal commissions, public outreach meetings. Use the environmental indicators that are already mandated by Federal and State regulations.

6. Connection and increase capacity to national goods movement system:
Definition: Travel time and capacity to and from regional, national and global markets.
Positive factors: Increases competitiveness of businesses, etc. by "delivering" goods and people in the most efficient manner possible. Encourages and/or facilitates major multi-state or regional mobility and economic growth and development in areas underserved by existing highway and rail infrastructure. Accommodates international, interstate, and intercity movements of goods and passengers that move into and through urban and rural areas, accommodates connections between different parts of the system, including intermodal transfer of goods and passengers on the system.
Negative factors: None.
Suggested data sources: Transportation users and providers, state border commercial vehicle stations, Canadian/Mexican border stations (U.S. Customs, U.S. Department of Commerce), feasibility studies.

7. Economic benefits to the region and nation:
Definition: Project investments shall maintain or increase jobs, support and enhance our region's economy by enabling the safe and efficient movement of goods to and from our international seaports, airports, and principal goods origins and destinations. Increase in GNP, increase availability of goods, promotes increase competition, mobility, accessibility, safety, environmental impact improvement, supports international commerce, enhances the national transportation system, environmental justice by improving development and mobility. Should show a definitive advantage over previous years.
Positive factors: Lower travel costs, improved logistics through better routing and creation of economies of scale by increasing the market reach of freight carriers, jobs created.
Negative factors: Capital outlay, environmental disruptions. May create congestion further in the onward delivery system. For example, enhancements brought about by the Alameda Corridor will effect the rail delivery and transfer system in Chicago. There may be some degree of environmental impact.
Suggested data sources: Regional Federal Reserve Bank office, Franchise Tax Board, Internal Revenue Service, Bureau of Transportation Statistics, transportation users and providers, state/regional economic development groups.

8. Volume of goods moved through the region (Trailer/Truckload):
Definition: Assesses volume in terms of "trailers" that may be a form of measurement that is more easily understood. Railcars can be converted to trailers based on the volume of the goods.
Positive factors: An effective means analyzing volumes and the effect on the goods movement system. Much easier to understand and incorporate in modeling systems. Also much easier data to collect from transportation users and providers. This system equitably considers the efficiency of bulk shipments.
Negative factors: Require a more detailed analysis of data that may be reported in TEU (twenty-foot container equivalents) and railcar loads.

Suggested data sources: Ports of Los Angeles, Long Beach, and Port Hueneme; U.S. Customs data, trucking associations, SCAG and Caltrans, transportation users and providers, Census data and Bureau of Transportation Statistics.

9. Value of shipments moved through the region:
Definition: Assigns a dollar value to the "trailers" which can be containers and/or trailers, steamship, rail, and truck.
Positive factors: Easier to understand.
Negative factors: Difficult information to collect on domestic shipments.
Suggested data sources: U.S. Customs records, Franchise Tax Board, transportation users and providers data, Bureau of Transportation Statistics.

B. Freight factors used to evaluate goods movement projects submitted for inclusion in the RTP for local/regional purposes:

1. Safety: (Same as A.1.)

2. Mobility and Accessibility: (Same as A.2.)

3. Reliability: just in time delivery: (Same as A.3.)

4. Equity: (Same as A.4)

5. Environmental Impact: (Same as A.5.)

6. Economic benefits to the region: (Same as A.7)

7. Community impacts:
Definition: Cost/benefit impact on the community from a quality of life standpoint via traffic pattern improvement, travel time reduction, environmental impact mitigation and increased employment.
Positive factors: Cash flow can be dramatically increased.
Negative factors: Construction impacts and infrastructure necessities, i.e., right of way acquisition, relocation of people and businesses.
Suggested data sources: Chamber of Commerce, community (stakeholder) outreach meetings.

8. Cost effectiveness:
Definition: Cost effective in terms of monetary value and with relationships to quality of life issues.
Positive factors: Easy to assess monetary impact.
Negative factors: Cancellation of project.
Suggested data sources: Cost/benefit analysis, community (stakeholder) outreach meetings.

Freight Factors and Evaluation Criteria
November 15, 2000

Freight Factors

A. Freight factors: Regional participation in Federal funding for goods movement relative to Impact on the national economy.	Transportation Modes Utilized Check all modes that apply to this project				Weight Percentage Score
	Truck	Rail	Ocean	Air	
1. Safety					12
2. Mobility and Accessibility					15
3. Reliability: just in time delivery					15
4. Equity					8
5. Environmental impact					8
6. Connection to national goods movement system.					9
7. Economic benefits to the region/nation					11
8. Volume of goods (trailer/truckload)					11
9. Value of goods					11
				Total	100

Freight factors used to evaluate goods movement projects submitted for inclusion in the RTP, for local/regional purposes:

1. Safety					12
2. Mobility and Accessibility					15
3. Reliability: just in time delivery					15
4. Equity					9
5. Environmental impact					12
6. Economic benefits to the region					14
7. Community impacts					11
8. Cost effectiveness					12
				Total	100

SR-60 Truck Lane Feasibility Study[1]

Executive Summary

The current Regional Transportation Plan for the SCAG region identifies dedicated truck lanes as a means to more efficiently keep goods movement flowing smoothly, improve overall mobility along the freeway, and improve traffic safety and air quality issues. For evaluating the feasibility of dedicated truck lanes, the RTP places high priority on the SR-60 corridor. SCAG's Truck Lane Task Force has been asked to assess the feasibility of dedicated truck lanes. The work in this SR-60 Truck Lane Feasibility Study has focused on such factors as design alternatives, financial impact, highway operations, safety considerations, environmental impacts and regional benefits.

The consultant team conducting the SR-60 Truck Lane Feasibility Study has concluded that dedicated truck lanes are feasible under certain conditions. This chapter describes those conditions and the feasibility evaluation based on several criteria including accessibility and mobility, cost-effectiveness, safety impacts, operational characteristics, regulatory concerns, regional benefits and environmental sensitivity. This Final Report consists of the Task Reports we have presented to the Task Force documenting the results of the evaluation of conceptual alternative improvements; the following chapters are:

Chapter 2/Task 2 Report:	Literature Review
Chapter 2/Task 3 Report:	Data Collection
Chapter 4/Task 4 Report:	Existing Conditions
Chapter 5/Task 5 Report:	Conceptual Designs, Operational Assessment and Financial Analysis
Chapter 6/Task 6 Report:	Preliminary Environmental Analysis
Chapter 7/Task 7 Report:	Community Outreach
Chapter 8/Task 8 Report:	Recommended Alternative
Chapter 9/Task 9 Report:	Layout Drawings
Chapter 10/Task 10 Report:	Implementation Strategies

[1] SR-60 Truck Lane Feasibility Study, Final Report, November 2000.

Technical Feasibility

Truck-volume forecasts for the year 2020 made by SCAG's Heavy Duty Truck Model indicate that a four-lane (two in each direction) facilities would be required to accommodate the truck demand. The following table gives details from SCAG's Model (1994 is the Model's "base Year"); the capacity of a truck lane is 800-1,000 truck per hour.

Truck Volume Forecast for Year 2020

	Truck Volume per Hour per Direction		
Segment	**1994**	**2020** without Truck Lanes	**Growth 1994-2020**
West End	1890	2850	960
East of I-605	1360	2200	840
SR-57 Junction	1474	2970	1,500
East of SR-71 Jct.	1180	2310	1,130
East End	2200	4000	1,860

Consequently, the consultant reports analyze two final conceptual alternatives: adding four lanes at grade and adding four lanes above the freeway grade.

The at-grade widening alternative would require acquisition of new right-of-way at various locations along the corridor. The would affect residences, businesses and commercial buildings as well as schools, parks and other environmentally sensitive areas adjacent to the freeway. Impacts of elevated segments would be of a lesser degree. All of these impacts would require comprehensive environmental studies before a project can be approved for implementation. Those studies should more fully evaluate other alternatives – noted during the community outreach – including all potential alternative alignments.

A recommended alternative was developed combining elements of both analyzed alternatives to form a hybrid solution. The recommended alternative consists mostly of adding four truck lanes at grade with aerial sections at the western end of the corridor (from I-710 to Vail Street) and east of I-605 (from I-605 to Fullterton Road). It is shown on the accompanying map. Photos attached show what each section would look like; included is a photo of an off-freeway alternative alignment between I-605 and SR-57 suggested by the Hacienda Heights Improvement Association during community outreach. Aerial photos should be kept to a minimum due to safety and operational considerations regarding trucks traveling on an elevated structure as well as due to higher construction costs. In the two segments of the corridor where aerial section is recommended, we believe elevating the truck lanes will avoid the extreme amount of property acquisitions necessary in those locations to provide the required right-of-way at freeway grade (many of these properties are sensitive properties such as schools). Consequently, we believe further work should consider the dedicated truck-lane facility at freeway grade except for those two segments. That would should also include design and operational studies that consider

having the HOV or mixed-flow lanes on the elevated segments, keeping all trucks at freeway grade.

Conclusion: If the option is pursued to add an elevated structure in designated portions of the corridor, truck lanes are feasible from the perspective of engineering and environmental considerations.

Community Feasibility

Community outreach for this feasibility study reached this conclusion: If all potential alternative alignments are given due consideration in further project development, the community along the corridor is likely to consider truck lanes to be feasible.

Financial Feasibility

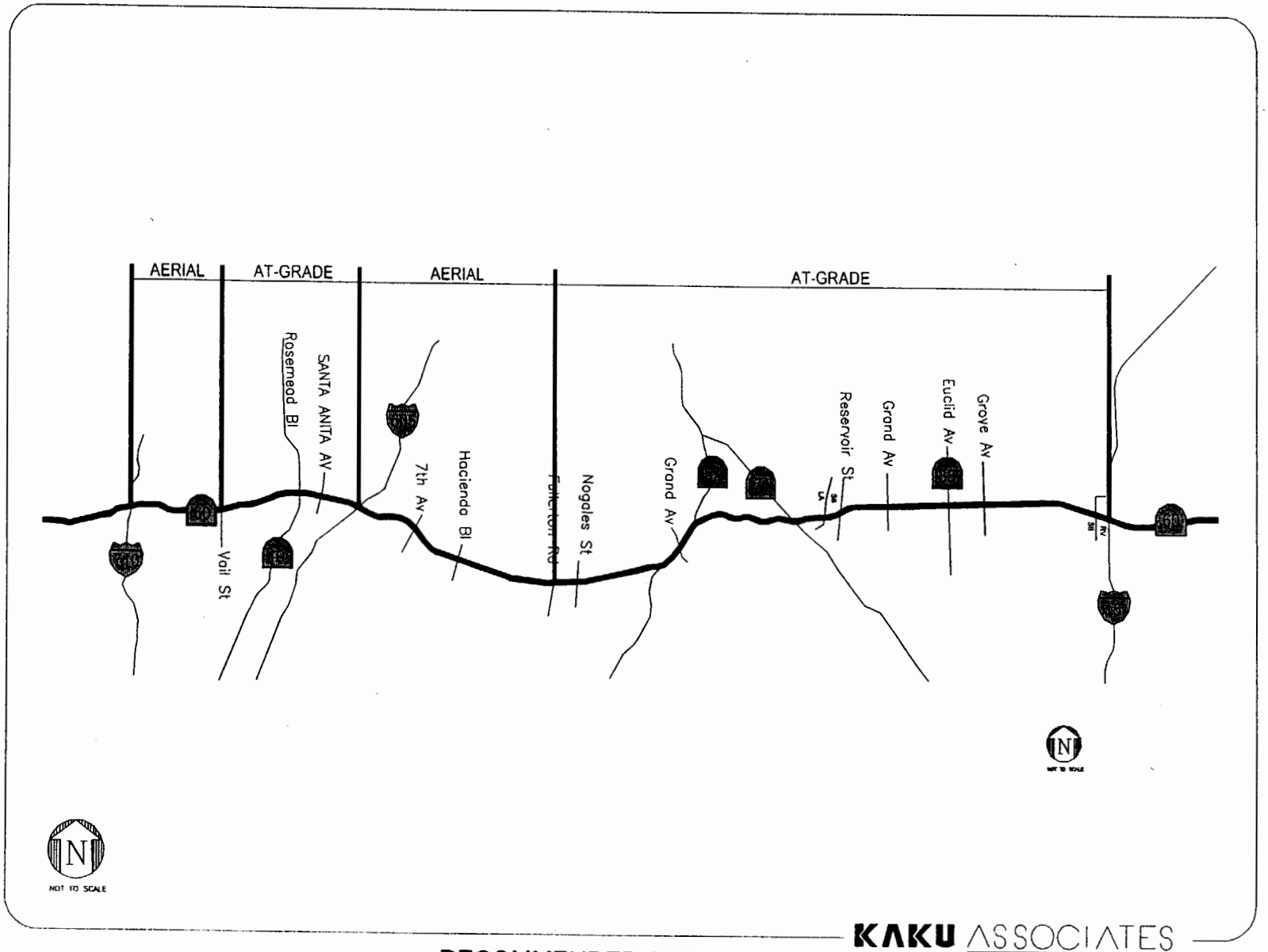
Our analysis shows that at most $1.2 billion of $4.3 billion corridor construction costs could be financed by leveraging the new revenue from truck-lane user fees. With a large gap between user-fee revenue and construction cost, it seems unlikely that other private sources of funding could be found. Therefore, project construction will require an infusion of capital from local, state and federal sources.

The public investment may be justified because providing dedicated truck lanes would reduce the requirement for mixed-flow lanes on the SR-60 freeway in 2020. The accompanying bar chart is the product of comparing four forecasts of the number of mixed-flow traffic lanes. The first bar shows the number of additional mixed-flow lanes which the SCAG Model forecasts would be necessary in the SR-60 corridor to maintain the current peak-period level of service; that bar is labeled "*w/o Truck Lanes (per SCAG Model*)." The second bar – labeled "*w/Four Truck Lanes (per SCAG Model)"* – allows us to see the impact of introducing four truck lanes (two in each direction) on the number of mixed-flow lanes forecasted to be required. Inspecting the difference between the first two bars reveals that in most areas one fewer mixed-flow lane per direction would be needed but in some areas that number is three fewer mixed-flow lanes. The third bar shows the difference made by the introduction of user fees on the truck lanes. In all but two areas of the corridor, the reduction in additional mixed-flow lanes is eliminated by charging trucks to use the dedicated lanes.

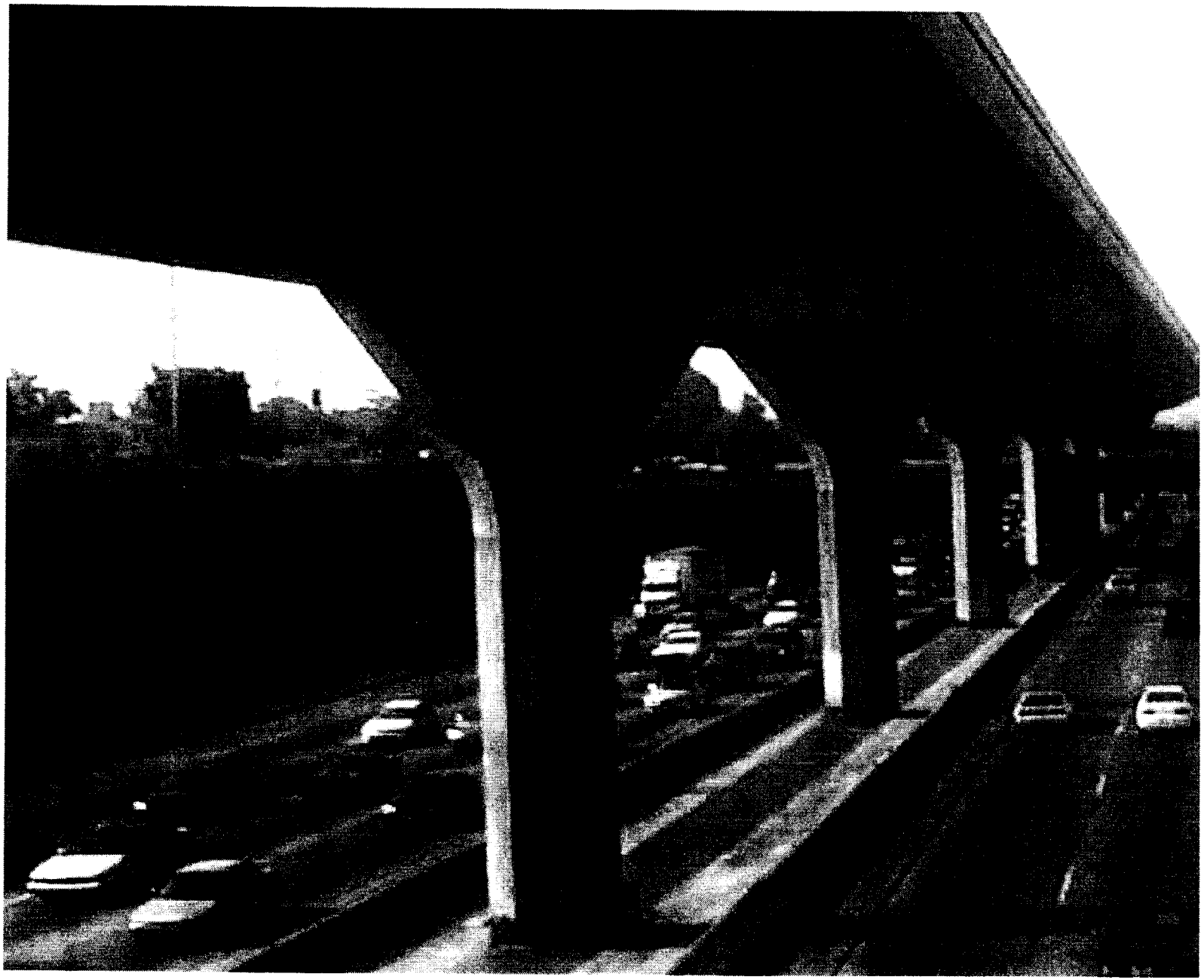
The fourth bar on the chart is taken from the "Transportation Concept Report" (TCR) for SR-60 being drafted by Caltrans District 7, which evaluates the "ultimate" needs of the corridor as well as concepts for adding lanes to the freeway within the next 20 years. For comparison purposes only, we have shown the bar labeled *"Caltrans 2020 Transportation Concept Report – Maximum."* It indicates how many additional mixed-flow lanes (not taking truck lanes into account) Caltrans believes would be needed to attain a free-flowing SR-60 freeway.

While it is not considered feasible by any agency to add to the SR-60 freeway as many lanes as shown on the barchart, the comparison is useful to illustrate the contribution truck lanes could made to meeting the need for more capacity in the corridor.

Due to the large magnitude—both geographically and financially—of the SR-60 truck lanes, a detailed, incremental implementation strategy will need to be developed once a final determination is made of the improvements required. Our consultant reports have presented some preliminary implementation concepts to be refined in further work in the corridor. That future work should investigate various cost-recovery options in more depth than we have been assigned to do in this feasibility study. Such options might include different approaches to user fees and how they would affect demand for truck lanes plus a separated toll road in the corridor that is open to all vehicles with a fee structure for trucks and passenger vehicles that can be adjusted to reflect congestion levels.



RECOMMENDED ALTERNATIVE



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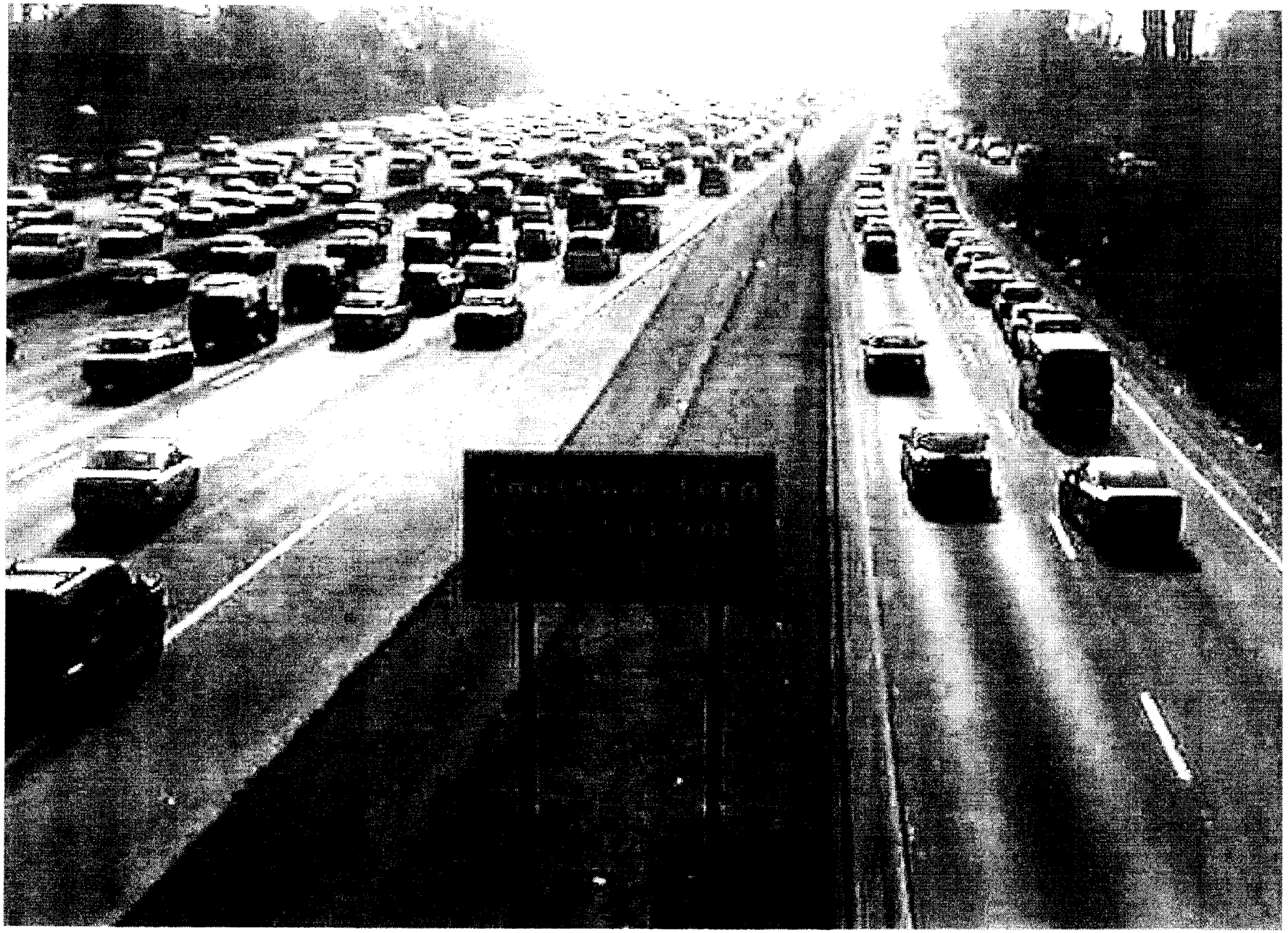
I-710 to Vail and I-605 to Fullerton



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Other Sections of SR-60

Number of Additional SR-60 Mixed-Flow Lanes per Direction Required in 2020